Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for measuring diffusion coefficient in conductive melts, comprising the steps of:

joining together two conductive solid materials with their respective different compositions in parallel with a gravity direction thereof,

heating and melting said conductive solid materials under static magnetic field orthogonal to said gravity direction to form two conductive melts with their respective different compositions therefrom,

maintaining said conductive melts for a predetermined period of time under said static magnetic field,

~~and~~

cooling and solidifying said conductive melts, and

measuring a diffusion coefficient between said conductive solid materials after cooling and solidifying said conductive melts.

2. (Original) The measuring method as defined in claim 1, wherein a ratio (w/h) is set to 1/5 or below if a height and a width of each conductive melt is set to "h" and "w", respectively.

3. (Original) The measuring method as defined in claim 1, wherein said conductive melts are maintained in a non-conductive vessel.

4. (Original) The measuring method as defined in claim 3, wherein said non-conductive vessel is made from graphite.

5. (Original) The measuring method as defined in claim 1, wherein a strength of said static magnetic field is set to 1T or over.

6. (Original) The measuring method as defined in claim 1, wherein said conductive melts are cooled at a rate of 20°C/minute or over.

7. (Original) The measuring method as defined in claim 1, wherein at least one of said conductive melts is an In-Sn melt.

8. (Currently Amended) An apparatus for measuring diffusion coefficient in conductive melts, comprising:

heater for heating and melting two conductive solid materials with their respective different compositions which are joined along a gravity direction thereof, to form two conductive melts with their respective different compositions,

holder for maintaining said conductive melts, and

magnetic field-applying means for applying static magnetic field to said conductive melts in a direction orthogonal to said gravity direction.

9. (Original) The measuring apparatus as defined in claim 8, wherein a ratio (w/h) is set to 1/5 or below if a height and a width of each conductive melt is set to "h" and "w", respectively.

10. (Original) The measuring apparatus as defined in claim 8, wherein said holder is made from a non-conductive vessel.

11. (Original) The measuring apparatus as defined in claim 10, wherein said non-conductive vessel is made from graphite.

12. (Original) The measuring apparatus as defined in claim 8, wherein a strength of said static magnetic field is set to 1T or over.

13. (Original) The measuring apparatus as defined in claim 12, wherein said magnetic field-applying means is constructed of a superconducting magnet.

14. (Original) The measuring apparatus as defined in claim 8, wherein at least one of said conductive melts is an In-Sn melt.

15. (New) The measuring method as defined in claim 1, wherein said diffusion coefficient is calculated according to an equation $L=(Dt)^{1/2}$ (where: L: diffusion length, D: diffusion coefficient, t: diffusion time).

16. (New) The measuring apparatus as defined in claim 8, wherein said diffusion coefficient is calculated according to an equation $L=(Dt)^{1/2}$ (where: L: diffusion length, D: diffusion coefficient, t: diffusion time).